1. INTRODUCTION

This guide will help you find and learn the dialing codes, so that you can use your CRYSTAL EPABX system exactly the way you want it. Take a little time to read through it and try out some of the codes on your extension.

1.1 Extension Telephone

Electronic push button instruments approved by DOT should be used on the CRYSTAL EPABX. You may use either pulse or DTMF phone on any extension.

1.2 Power Failure

In case of power failure and UPS not attached to the system, the EPABX operates in power-fail mode. Intercom operation stops and all trunks are connected to different extns directly. Calls can be made from these extns. Incoming calls will come on respective extns. This helps to maintain communication with the outside world even during dark outs.
The table below shows how various extns are used as power down extns:

System / Trunk	206	308	412	618/1030	1054/1086
61	21	21	21	201	201
62	22	22	22	202	202
63	- -	23	23	207	203
64	- -	- -	24	208	204
65	- -	- -	- -	213	205
66	- -	- -	- -	214	206
67	- -	- -	- -	219	207
68	- -	- -	- -	220	208
69	- -	- -	- -	225	209
60	- -	- -	- -	226	210

When mains returns, normal operation shall resume. Changeover from normal to power fail operation and back, is automatic.

1.3 Optimum utilisation

The ring and ring back tones are automatically shut off if the called party does not reply within approximately 30 seconds. Similarly, the dial tone/busy tone are also shut off after approximately 15 seconds.

2. INSTALLATION & COMMISSIONING

2.1 Requirements

Installation should be done by authorised & trained personnel only in compliance with D.O.T. (Indian Deptt. of Telecommunication) standards.

2.2 Site requirements

CRYSTAL is designed to work in a normal office environment. The unit should be sited beside's the operator in the reception area and should be away from :

- Processes producing electricity, fumes, dust, gasses or radiation (e.g. silicon or halon contamination from photo copying or fire protection equipment)
- Electrical meters or switchgears
- Water pipe, gas meters, pipes or appliances
- Dampness
- Vibration

2.3 General

Ensure a good power point for the exchange with a 5 pin socket & switch. If possible, the customer should be asked to provide a " clean" power supply direct from the power distribution board. CRYSTAL is set to work at 220V AC, 50Hz mains supply.

Establish a firm ground outside the building. The ground resistance should be within tolerance limit. Connect this ground to earth terminal on the MDF.

NOTE :

A good earth is very essential for protection of junction lines and proper functioning of the system.

WARNING: ANTI-STATIC PRECAUTIONS MUST BE TAKEN WHEN WORKING WITH THE CARDS OR COMPONENTS OF CRYSTAL EPABX.
CAUTION: Never insert or pull cards from the equipment with the "power on" under any circumstances. In fixed systems, do not pull out or insert any flat cable during power ON.

2.4 Commissioning checks

Power-up CRYSTAL system and carry out the following checks:

A) On each extension check:

Internal dial tone

Dialing

Ringing

B) Seize each outside line circuit in turn, dialing 61 for the first circuit, 62 for the second, etc. & check that the line seized LED operates.

C) From a DOT extension dial a Jn. number and verify that calls are successfully landing on the main equipment and properly transferred to local extensions. Repeat for all external lines.

D) Switch off the exchange. Check the power fail extension for external dial tone. These extensions should be able to dial out and receive respective incoming calls directly.

The exchange once installed and put into operation needs little routine maintenance. Any line fault can be isolated at the MDF, and exchange faults can be isolated at the card level. Faulty cards can be replaced with service cards while they are repaired at authorised maintenance centre to minimise system down time.

NOTE:

1) **For lightning/high voltage protection, it is necessary that you install protection device on all Jn lines and overhead extension lines. Damage caused on Crystal systems due to high voltages is not covered under warranty.**

2) In case of a fault on the main equipment which results in the outside line getting held up, immediately isolate the outside junction line by removing the junction line fuses provided on the MDF of the equipment.

3. NUMBERING SCHEME

In fixed systems, extn. are numbered as 21, 22, 23.... and junctions as 61, 62..... In expandable systems extension numbering is three digit starting from 201. junction numbering remains same as 61, 62.... 69, 60. Further, CRYSTAL expandable series of EPABX'S are 100% flexible in terms of Jn line/extn. line combinations -- i.e. simply by using appropriate cards, one can configure 412 system as 0+16 or 2+14 or 4+12. Similarly, a 1030 system can be configured as 0+40 or 2+38 or 4+36 or 6+34 and so on.

To enable above flexibility there are two types of line cards - 2+6 type (i.e. 2 Jn and 6 extn.) and 0+8 type (i.e. ..8 extn. only). Any type of card can be plugged into any slot. (However, if 2+6/0+8 cards are used, then first all 2+6 cards will be inserted followed by all 0+8 cards). The numbering scheme for various options shall be as follows :

1st slot

2+6 line card	Jn 61, 62 EXTN 201, 202, ... 206
0+8 line card	EXTN 201, 202, ... 206, 273, 274

NOTE :
Take connections of 7^{th} / 8^{th} extn i.e. 273 and 274 from 61 and 62 terminals on the MDF

2nd slot

2+6 line card	Jn 63, 64 EXTN 207, 208, ... 212
0+8 line card	EXTN 207, 208, ... 212, 275, 276

(Take connections of 275, 276 from 63,64 terminals)

3rd slot

2+6 line card	Jn 65, 66 EXTN 213, 214, ... 218
0+8 line card	EXTN 213, 214, ... 218, 277, 278

(Take connections of 277, 278 from 65,66 terminals).

4th slot

2+6 line card	Jn 67, 68 EXTN 219, 220, ... 224
0+8 line card	EXTN 219, 220, ... 224, 279, 280

(Take connections of 279, 280 from 67,68 terminals).

5th slot

2+6 line card	Jn 69, 60 EXTN 225, 226, ... 230
0+8 line card	EXTN 225, 226, ... 230, 281, 282 (Take connections of 281, 282 from 69, 60 terminals).

After 5th slot one may use 0+8 cards though it is possible to use 2+6 card also, keeping the two junctions as useless and using only 6 extns of this card.

6th slot

0+8 line card	EXTN 231, 232, ... 236,283, 284 (In P58MX cabinet, you shall find 283, 284 terminals immediately after 48th extn terminal i.e. the 49th extn terminal shall be 283 and 50th extn terminal 284) (Similarly, in P86MX cabinet, the terminal immediately after 72nd extn is 283 and then 284)

7th slot

0+8 line card	EXTN 237, 238, ... 242, 285, 286 (For P58 51st terminal is 285, 52nd terminal is 286. For P86 75th terminal is 285, 76th terminal is 286)

8th slot

0+8 line card	EXTN 243, 244, ... 248, 287, 288 (For P58 53rd terminal is 287, 54th terminal is 288. For P86 77th terminal is 287, 78th terminal is 288)

9th slot

0+8 line card	EXTN 249, 250, ... 254, 289, 290 (For P86 79th terminal is 289, 80th terminal is 290)

10th slot

0+8 line card	EXTN 255, 256, ... 260, 291, 292 (For P86 81st terminal is 291, 82nd terminal is 292)

11th slot

0+8 line card	EXTN 261, 262, ... 266, 293, 294
	(For P86 83rd terminal is 293, 84th terminal is 294)

12th slot

0+8 line card	EXTN 267, 268, ... 272, 295, 296
	(For P86 85th terminal is 295, 86th terminal is 296)

The main concept in above numbering is as follows-

The 1st six extensions of all cards are numbered serially from 201 to 272 (covering 12 cards X 6 extension = 72 extensions). For 0+8 cards. the two jns which are converted into extensions start from 273 & 274 for the 1st card and keep on proceeding upto 295 and 296 for the 12th card.

4.BELLS AND WHISTLES

This section describes the ringing pattern of extension phone. Some of these tones will be familiar, others may be new to you.

4.1 Ringing patterns

Your extension phone will ring with a different cadence (ringing pattern), depending on the type of call waiting to be answered, as shown:-

Internal Call

Executive ring

When an extn. is allowed all features (i.e. level 88 in the class of service programming), that extn. is termed as an executive extn. Now, whenever this extn. calls any other extn., the ring cadence will be faster as compared to normal extn. ring prompting the called extn. to respond faster.

External Call

Alarm Call

4.2 Tones

To get a demonstration of the various tones, dial from any extn.,

☞ **Users password (By default 89 1111),** now

Dial

For dial tone	**761-1**
For ring back tone	**761-2**
For busy tone	**761-3**
For error tone	**761-4**
For confirmation tone	**761-5**
For programming tone	**761-6**
For internal call waiting beep	**761-7**
For trunk call waiting beep	**761-8**
For warning tone	**761-9**
For music	**761-0**

To come out of demonstration mode,

☞ **Dial 0**

NOTE:

Each tone shall be heard for about 20 seconds.

5. HOOK FLASH

You shall have to use the “Hook-Flash”, prior to dialing any facility code.

Hook flash (HF) is a gentle/ slow tap of the cradle switch. After HF, you shall get a slow acceptance tone.

For pulse instruments, you can use **Digit 1** as hook flash.

Ex. To transfer a P&T call -

☞ **Dial 1** (You shall get acceptance beeps)

☞ **Now dial extn. no. and your call is transferred.**

5.1 The Thumb-Rule for using Hook Flash

Whenever dialing any extn. number or code from - dial tone/call forward dial tone/engaged tone, dial straight away.

For dialing extn. number or facility code from ring back tone / conversation mode, first HF and then dial the required number.

NOTE:

1. After completion of any call (internal / external) replace handset for minimum 1 sec for disconnection before going off hook for the second call.

2. If your instrument is provided with a flash key, enquire the timing of key from your system manager / dealer. If it is below 100 milliseconds, do not use this key (it shall be ignored by the system). You may use the cradle switch for HF. If the timing is between 100-900 msec, you may use this flash key for HF.

3. If while transferring a P&T call, you press any wrong code / extn. no. do not panic. You can HF anytime. You shall come back in speech mode with P&T call. Now, proceed again.

6 MAKING CALLS

6.1 Internal calls

When you pick-up your phone, you will hear internal dial tone, then :

☞ **Dial extension number**

Extensions are numbered 21 onwards for fixed systems & 201 onwards for expandable systems.

6.2 External Calls

Dialing 0/5 automatically gives you an free outside line by rotation. The public dial tone will be different from the internal tone on your CRYSTAL system. So, to make an outside call:

☞ **DIAL 0**

✆ **Wait for trunk dial tone**

☞ **Dial the required external number**

If for any reason you want to use a specified exchange line to make call,

☞ **DIAL XX**

Where XX is the number of the exchange line (i.e 61 for line no. 1, 62 for line no. 2 and so on)

✆ **Wait for P&T dial tone**

☞ **Dial the required external number**

Instead of getting trunk dial tone, if you get:

A. CRYSTAL ERROR TONE : This means that your extension is locked from making that type of call.

B. CRYSTAL ENGAGED TONE: It indicates that the junction number is busy.

NOTE:
Do not pause for more than 5 seconds between digits when dialing. After you finish dialing, you must wait for 5 sec. before you dial any facility code (e.g.to transfer a call to another extension etc.)

7. USERS PROGRAMMABLE FEATURES

Following features/modes can be accessed or changed by any user, provided he knows the users password :

a) All printing commands

b) Day/Night/Auto mode chageovers

c) Paging access

To enter users programming mode, dial users password

☞ **89 1111**

Now, you can change/access above features. To come out of programming mode,

☞ **Dial 0**

NOTE:

Above password of '1111' can be changed from the main programming mode.

8. INCOMING TRUNK LINE HUNTING (ROUND ROBIN)

Your system can be programmed such that, incoming P&T calls shall ring directly on the subscriber telephones.

8.1 Round Robin Patterns

A) ROUND ROBIN

The incoming calls shall land directly on the subscriber telephones as per instructions programmed into the system. If an incoming call is not answered within five rings, then the next extn. (as programmed) will ring or, will hear call waiting tone, if busy. A maximum of 5 subscribers can be programmed to ring in a cyclic manner for each junction.

B) DELAYED SIMULTANEOUS

On an incoming call the 1st extn. shall ring. If this extn. does not respond within 5 rings then all balance extns of that group will start ringing simultaneously. Any extn going off hook will get connected to the call.

C) IMMEDIATE SIMULTANEOUS

In this mode, on an incoming call all extns of the group will ring simultaneously.

D) R-ROBIN OFF

In this mode only 1st extn of the programmed group will keep on ringing.

A junction can be set for any of the above four types of ringing pattern seperately for day/night mode.

9. PARKING CALLS

This is the way of putting external calls on hold, so that you can use your extension for making or answering other calls. To park the external call :

☞ **HF/Dial 5**

You shall get back the dial tone and the call will be parked on your extension. You can now, for example make or answer outside call.

To return to the call that you have parked:

☞ **Dial 15**

NOTE:

A. Any number of external lines can be parked by dialing 5.

B. In any case, if you have parked a call, you may hangup your phone. The call will automatically ring you back after 30 seconds. Do not worry that you may forget or loose parked calls. After parking a call, if you are in conversation mode with some other party, then you shall get intrusion beep, reminding you of the parked call.

C. When more than one calls are parked on different junctions, they revert back according to their respective parking order (i.e. first in – first out). However if we try to return back to the parked calls by dialing 15, we will be connected to them according to their ascending junction number.

10. CALL TOGGLE

When you are in conversation mode and hear intrusion beeps (be it of an intercom call or incoming round-robin call) you can toggle between the present call & the incoming call by

☞ **Flash 1**

Whenever you dial flash 1, the current call will go on hold & you shall be connected to the new call.

You can toggle any number of times by flash 1 between the two calls.

11. CALL TRANSFER

11.1 Internal Call Transfer

When you are talking to an internal extension and wish to transfer the call to another extension :

☞ **HF & dial the desired extension number where the call is to be transferred.**

✆ **Wait for extension to answer.**

☞ **Hang-up.**

The call is transferred.

11.2 External Call Transfer

When you are talking to an outside number, and wish to transfer the outside call to another extension:

☞ **Hook flash**

✆ **You shall get acceptance beep.**

☞ **Dial extn. number**

Outside party goes on hold and gets music tone, and you shall get ring-back tone.

☞ **Replace handset**

The call is automatically transferred to the desired extension. In case the called extn. does not respond within 30 secs. the call shall revert back to you.

Alternately,

☞ **Dial the desired extension number where the call is to be transferred. Outside party automatically goes on hold and gets a music tone.**

✆ **Wait for the extension to answer. Announce the call.**

☞ **Hang-up.**

The call is automatically transferred.

A. In case the called party (Internal extension) does not want to talk with the P&T line and hangs up, you will be automatically connected back to the outside line.

B. In case the desired extension does not respond, to return to the outside call,

☞ **Hook flash**

You are connected back to the outside line.

11.3 External call Transfer to a busy extension

A) While transferring any junction call to a extn, on getting busy tone simply

☞ **Go on hook**

The call will be camped on the busy extn., and the busy extn shall keep on getting call waiting beeps. The busy extn can toggle between the existing call & the transferred call on hold by

☞ **Flash 1**

NOTE :
This mode of transfer does not work if
(a) The busy extn. has set call privacy for beeps
(b) The extn. is in dialing mode.

For conference between both calls,

Dial

☞ **H/F + 0**

Alternately, on getting waiting beeps, if the busy extension disconnects, then the transferred call shall ring back on his extn.

B) If the call being transferred is urgent, then on getting busy tone

☞ **Dial 83**

On dialing 83 you shall get music, and then you shall be connected to the dialed extn. Announce the call & hang up. The busy extn. will be connected to the transferred call & the existing call with which the extn was speaking will get camped. The busy extn can now toggle between the two calls by

☞ **Flash 1**

NOTE :

1) While transferring, if the extn. goes no reply or is busy and you want to get back to the call-simply **H/F.** You shall be connected back to the external call and now proceed again.
2) If already any call is parked/camped on a extn., you cannot transfer another call to that extn.

12. CALL PICK UP

12.1 Internal call pick-up

If any other extension phone is ringing for an internal call, to answer it from your non-ringing phone,

☞ **Dial 76XX**

Where XX is the extn. number of the ringing phone.

12.2 Common Call Pick-up

If any other extension in your hunting group is ringing, to pick it up from your extension,

☞ **Dial 4**

You shall be connected to the calling extension.

NOTE :

1) If a number of extns in a group are ringing simultaneously for both trunk and internal calls and any non-ringing extn. of same group dials 4, he will be first connected to trunk call.
2) Alarm call ringing on a particular extn. cannot be picked by any other extn.
3) If an extn. is ringing for a call from the operator console, it can be picked by other extn. only by 76XX.

12.3 External Call Pick-up

To pick-up a Jn. call ringing on any extn. not in your group.

☞ **Dial 85**

12.4 Pick-up of Parked Calls

Parked calls automatically revert back after 30 seconds of the extension going free. However, to return to the call that you have parked,

☞ **Dial 15**

13. ABBREVIATED DIALING

Abbreviated (Memory) dialing lets you dial outside number using only 4 digits instead of having to remember the whole number. Each extension can store upto 10 individual telephone numbers in their personal memory banks.

13.1 Storage of telephone number

Upto ten numbers can be stored at location 8800, 8801.... 8809

To store

☞ **Dial 18 AA X YYYY...#**

Where **AA** is the location number (00 to 09)
X is the junction line no. (1 for 61, 2 for 62,..., 0 for group 0 & 5 for group 5) on which you wish to dial out the stored number.
YYYY is the telephone number to be stored.

Example: For storing number 7232323, to be dialed from jn 62 at location 8800,

☞ **Dial 18 00 2 7232323 #**

To dial out, simply dial the code 8800 to dial the relevent stored digits.

NOTE :

If you are not particular to dial out a stored number on any specific junction line, you may programme junction number as 0 or 5. In such case on dialing 8801 or 8802 etc. your stored number shall be dialed out on any free P&T line (in 0 group or in 5 group).
You cannot store any number specifically on junction number 60 and 65.

13.2 Global Dialing

Apart from the personal memory bank, there is a central memory pool of 90 numbers at location 8810 to 8899 which can be commonly accessed by all extensions. For storing of numbers in the central pool, refer to the programmers guide.
To dial out, simply dial the relevent code (8810 to 8899). Numbers stored in the global pool, termed emergency numbers, can be dialed out by all extensions irrespective of their class of service.

14. AUTOMATIC RING BACK

If an extension is busy so that you cannot get through it, you do not have to keep trying the number. You can ask the CRYSTAL system to redial it automatically for you when it becomes free.

14.1 Auto-ring back on internal lines

If you dial another extension and get busy tone, to request a ring back:

☞ **Dial 75**

Hang-up.

When the extension becomes free, your phone will ring (for about 45 sec). Pick-up your phone. The extension you require will then ring, and when the user answers, you will be connected.

14.2 Ring back on exchange lines

If you dial 0/5 or 61, 62.. to get an outside line and get busy tone, meaning no outside line is available, to request a ring back:

☞ **Dial 75**

Hang-up.

When an outside line becomes free, your phone will ring. Pick-up your phone. You will hear public dial tone. You can dial the number you require without having to dial 0/5 again.

14.3 Auto Ring back on No-reply Calls

If you dial for any extn. number and do not get a reply (meaning that the called party is not on his table), you can set for an auto ring-back. As soon as the called party first lifts his handset your extn. will ring. As soon as you pick up your phone you will be connected to the dialed extension.

To set above facility:

☞ **HF and Dial 75** (While ring is going to the called extn.)

Hang-up.

15. CONFERENCE CALLS

There are three types of conference calls,those involving an outside line, those involving internal and outside line and those involving only internal extensions.

15.1 Internal

When on an internal call, to bring third extension into conference.

☞ **H/F & dial the desired extension number.**

When the extension answers announce conference and

☞ **HF & dial 0**

A conference call involving three extensions is established.

15.2 Internal with P&T

One external call can be brought into conference with two internal lines. When you are on an outside call, to convert it into a 3-way conference :

☞ **HF & dial extension number to be added for conference.**

The outside line goes on hold & gets music tone.

✆ **Wait for the extension to respond and announce con ference.**

☞ **HF & Dial 0**

Three party conference is established.

NOTE:

For conference, the extn. initiating conference should be in the group with conference feature enabled. (Refer to programmer guide)

15.3 P&T with internal

Two P&T calls can also be brought into conference with any one internal extension. To establish a conference :

When in conversation with 1st junction,

☞ **H/F and Dial 8**

✆ **Your reciever shall remain silent.**

Now, seize 2nd junction by either '0' or 61/62 (not by '5'). When in conversation with the second call,

☞ **HF/Dial 0**

A three party conference is established.

NOTE:

Once in conference, you cannot transfer or park these calls again.

15.4 Unsupervised conference

Two P&T calls can be brought into conference without any internal extension also. To establish a conference :

When in conversation with 1st Jn.

☞ **H/F and dial 8**

✆ **Your receiver shall remain silent.**

Now, seize 2nd Junction. When in conversation with the second call,

☞ **H/F & dial 8**

You shall come out of speech mode, and the two junctions can continue talking. A warning beep is given after every 30 sec. wherein they can extend the call by dialing any digit from **0-9.**

To disconnect

☞ **Dial #.**

16. CALL DIVERSION

If you are going to be near another extension phone rather than your own, or if you wish to divert all calls made to you, to your secretary's extn., you can set your phone so that anyone dialing you will be put through to the other extension.

A call forward dial tone is always heard on the phone which has been diverted. This does not mean that you cannot use it for making calls.

16.1 Call Forward

To divert your calls to your secretary's extension from your own extension:

☞ **Dial 721 XX and go on hook**

Where XX is the secretary's extension number to which calls are to be diverted.

Anyone dialing your number shall land on your secretary's extension & the secretary can then transfer the call to your extn.

NOTE:

Whenever you lift handset you will hear call forward dial tone. Anyone picking up your phone will hear this tone until the diversion is cancelled.

When you no longer want your calls to be diverted, remember to cancel the diversion. You can do this from your own phone. For this,

☞ **Dial 720**

You will hear normal dial tone.

16.2 Call Forward (Only if your extn is busy)

With this feature, only when you are busy and anyone dials for your extn., the call will be automatically forwarded to the programmed extn. To set for above

☞ **Dial 724 XX**

Where XX is the extn no. where calls are to be forwarded.

16.3 Call Forward (If your extn goes no reply)

With this feature, if you do not respond to an incoming call within 20 sec. time, the call will be automatically diverted to the programmed extn. To set for above,

☞ **Dial 723 XX**

Where XX is the extn. no. where calls are to be forwarded.

16.4 Follow me

If you are temporarily away from your original extn. (say A) and you want all calls made to your original extn. to ring on your new extn. (say B):

Dial (From B)

☞ **722 XX YYYY**

Where **XX** is the extn. to be followed (i.e. extn. A)

YYYY is your extn password.

Any call now made to A shall land on B.

NOTE :

After setting for follow me,extension A shall hear call forward dial tone.

To cancel :

From A

☞ **Dial 720**

17. CALL INTRUSION

If any important or priority message is to be passed on to an extension which is busy, you can break into the busy extension. Short warning beeps are sounded to caution the extn. that their call is being intruded.

17.1 Barge-in

To pass on any message,

☞ **Dial desired extension number (say A).**

After getting busy tone,

☞ **Dial 83**

The busy extension (A) will get a warning beep and you will get music for 5 seconds. After that you shall be connected to the busy extension. The 3rd extn. will go on hold & get music tone. The busy extn. (A) can toggle between the two extns by **Flash 1.**

NOTE :

Barge - in shall not work if the busy extn. is in conference mode / dialing mode / ringing mode.

17.2 Monitor

With this facility you can monitor the conversation of two extensions without any indication (beeps) to the conversing extensions. To monitor:

☞ **Dial extension number.**

After getting busy tone,

☞ **Dial 80**

You can now monitor the conversation between the busy extensions.

17.3 Interrupt

To interrupt in between any conversation,

From busy tone

☞ **Dial 84**

✆ **You shall get music tone and busy extn shall get call intrusion beeps.**

If the busy extn. dials **Flash-1,** he shall be connected to you.

The busy extn can now toggle between the two extns by

☞ **Flash-1**

18. DAY/NIGHT MODE

For a number of features like –Round Robin / ISD, STD, dialing / feature groups etc. different groups can be programmed seperately for day/night modes. You can switch over manually between the two modes as follows :

Dial users password (default 1111)

☞ **89 1111**

You shall get acceptance tone.

Now,

Dial

☞ **851 for day mode**

☞ **852 for night mode**

Alternately, you can programme a set of timings seperately for seven days of the week for the system to automatically switch over between the two modes. To programme the timings refer to the programmers guide. To set the system for auto mode,

☞ **Dial 853**

Now,

☞ **Dial 0**

to come out of programming mode.

19. HOTLINE

This feature comes in useful when a particular extension / junction is to be used continuously and repeatedly over period of time.

19.1 Extension Hotline

☞ **Dial 161+XX+Y**

Where XX = extn number.

Y = time delay (2~ 9 Sec.) after which you want the ring to start.

19.2 Jn. Hotline

☞ **Dial 162 + Jn. number + delay time**

NOTE :

1. As soon as you lift your handset, you will be connected to the desired junction. Now, you can straight away dial the required number.
2. Jn. number '0' and '5' cannot be selected for hotline.

19.3 Jn. number hotline

If you wish that a particular external number be dialed automatically, as soon as you lift your handset,

☞ **Dial 163 + Jn. no. + delay + external number + #**

Example : If you wish that number 732123 is to be dialed out from jn 62 after 5 sec. of lifting your handset then,

Dial

☞ **163 2 5 732123#**

To cancel any type of hotline

☞ **Dial 160**

NOTE:

Use 1 for Jn line 61, 2 for 62 & 3 for 63 & so on.

20. ALARM CALLS

You can use your CRYSTAL system as an alarm clock, for example to remind you that an appointment is due.

At the specified time your extn. will ring, and as soon as you go off hook, you shall get music, to remind you of your alarm. In case you fail to lift your handset, your extension will continue to ring for 90 seconds. If still your extension goes unanswered, the operator's extn. (extn 21/201) shall get an alarm ring.

20.1 One Time Alarm

To programme your telephone to ring at specified time

☞ **Dial 782 HHMM**

Where HHMM is the time.

Example : For an alarm at 4.05 pm,

☞ **Dial** 782 1605

When your alarm is due, your phone will ring. When you lift, you will get music tone. If your extension is busy at that time, it will ring as soon as you go on hook.

20.2 Repeat Alarm

Alternately you can set your extension to ring daily at the specified time.

To programme a repeat alarm :

☞ **Dial 783 HH MM**

Your extn. shall now ring daily at this specified time till it is not cancelled.

To cancel any of the above alarms:

☞ **Dial 780**

20.3 Duration

If you want your extn. to ring after a specified duration,

☞ **Dial 781 XX**

where XX is the time from 01 to 99 minutes.

20.4 Alarm Remote

To set alarm for some other extension

☞ **Dial 784 XX Y HH MM**

Where **XX** is the extn. no. for which the alarm is to be set

Y is alarm code (i.e. 2 for one time alarm / 3 for daily alarm)

Example : To set one time alarm at 5.10 pm on extn. 24 **Dial,**

☞ **784 24 2 1710**

To cancel all alarms,

☞ **Dial 780**

NOTE:

Each extension can individually set any one or all three alarms simultaneously.

21. AUTO CALL DISCONNECTOR

To cut down on your trunk bills you can have an option to either

A) Give only warning beeps after predetermined intervals on either only local or only STD or only on incoming call or on all three types of calls.

B) Disconnect any type of selected call after the warning beep.

The duration for the warning beep is programmable from 010 sec. to 240 sec. and can be set separately for local / STD, ISD / incoming calls.

Refer to programmers guide for setting of above.

The above options can be set separately for each extension.

22. WALK IN CLASS OF SERVICE

To use STD / ISD facility from any non - STD / ISD extension,

Dial

☞ **111 XX YYYY**

Where **XX** is your extension number

YYYY is your extension password

Now, you can make one STD / ISD attempt. After dialing above code, the matured call shall be billed to your extn in the ASMDR buffer.

To make another attempt, you shall have to dial in above code again.

NOTE :

Above facility will be functional only after you have changed your extension password from default '1111'.

23. CALL BUDGETING

For an effective management on junction call bills you can set a budget amount for a particular extension. Once that extn. crosses the budgeted amount, his extn. will get locked for ISD / STD calls and will open again only on the 1st of the next month. Alternately, to open his extn. in between the month, set a fresh amount. Refer to programmers guide for setting of fresh amount.

24. TRUNK RESERVATION

One can reserve any junction for any important occasion. To reserve,

Dial

☞ **112 X**

Where **X** = Junction number (1 for 61, 2 for 62...)

Now, only you can access this trunk. To free the junction,
Dial

☞ **112 0**

NOTE:

1.) Above junction will also become free automatically if not used for 3 minutes.

2.) Jn '0' cannot be reserved.

25. DYNAMIC LOCK

To prevent misuse during your absence, you can lock your extension to allow only local or no external call at all.

25.1 To set dynamic lock

Dial

☞ **81 YYYY X ZZ**

Where **YYYY** = your extn. password (default 1111)

X = 1 for complete lock
2 for only STD/ISD lock

ZZ = time after which you want your extn. to be locked (from 00 to 99 min.)

Now, whenever your extn. shall be idle for the above programmed time, it shall automatically get locked.

NOTE:

In case you desire to lock your extn. before the scheduled time, repeat the prog. command given above.

25.2 To open lock

Dial

☞ **82 password**

25.3 To change password

Dial

☞ **86 XXXX YYYY**

Where **XXXX** is old password ('1111' by default)

YYYY is new password to be set.

26. REDIAL ON EXTERNAL LINE

If you are trying any external number and if the dialed number is engaged, you need not have to redial the complete number again. You can ask your CRYSTAL system to redial the number for you. To redial:

☞ **Dial 71 or #**

The junction through which the number was last dialed shall be seized ON and the number shall be redialed out automatically.

26.1 Auto Redial

If the external called number is busy, you can ask your CRYSTAL system to automatically redial the number for you. There are two types of auto redial,

A) Auto redial (Regular)

On getting busy tone, disconnect & from dial tone

☞ **Dial 711**

B) Auto redial (High end)

On getting busy tone, disconnect & from dial tone

☞ **Dial 7111**

On setting for above facility, the system shall automati cally seize the line and dial out the number for you. If the called number is busy, it shall redial the number again automatically.

As soon as ring back tone is detected, your extn will ring. Lift your handset and you shall be connected to the dialed number.

If the system does not detect ring back tone within a programmed time, it shall release the trunk & try again.

NOTE:-

1) The basic difference between the two types of auto redial is the number of redial attempts and the

delay between two attempts. Refer to programmers guide for further details.

2) Auto redial will stop whenever your extn. is busy & shall resume back as soon as it goes free.

3) Auto redial has to be allowed to required extns. from the class of service programming.

4) When dialing 71/711, wait for about 3 sec. to get acceptance tone.

5) Only one number can be requested for auto redial at a time.

6) The system uses the same trunk type, used earlier. If the no. was dialed on group '0', the system shall take one of the group '0' trunks for auto redial.

If the no. was tried on some selected trunk, the system uses the same trunk.

7) Auto redial may fail in following cases :

a) Junction line condition is very poor with lot of noise.

b) Called party lifts his handset immediately when his telephone rings (i.e. the EPABX does not get a chance to receive any ring back tone from the P&T).

c) The ring back tone from the telephone exchange is not of standard frequency and timings.

☞ **To cancel redial,**

Dial 710

27. HOOK FLASH ON TRUNK LINE

In new electronic P&T exchanges a call waiting tone is provided when a second call is coming in. A **Hook Flash + 2** puts the 1st call on hold & connects you to the 2nd call & **Hook Flash +1** puts the 2nd call on hold and puts you to your original call. To provide this hook flash +1 / 2 through the EPABX, while you are on any external call & hear the trunk call waiting beeps in the background:

☞ **HF and dial #**

Now if you dial

☞ **Flash 1 or Flash 2**

It shall be passed on to the junction line.

Example : To receive a 2nd call

☞ **Dial Flash #**

Now,

☞ **Dial Flash 2**

28. ACCEPTED & DENIED TABLE

1. This table of accepted & denied numbers has 10 levels (0 to 9).
2. Each level can have a maximum of 10 accepted numbers and 10 denied numbers (The numbers can be from 1 digit to maximum 14 digits).
3. Any level can be assigned to any extension and an extn. can have seperate levels for day / night mode.

The accepted & denied table shall be as follows.

Level	Accepted group	Denied group
0	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
1	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
2	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
3	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
4	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
5	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
6	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
7	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
8	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9
9	XX0, XX1, XX2, ...XX9	YY0, YY1, YY2, ...YY9

Where

XX0... XX9 are ten numbers (max. 14 digits) for accepted group and

YY0...YY9 are ten numbers (max. 14 digits) for denied group.

4. When an extn. dials for any external number, the system shall first check the class of service programming for that extn. (i.e. 94 programming for local / STD / ISD). If only local dialing is allowed to any extn. & that extn. tries to dial an STD number, the junction shall be released immediately at this stage itself.
5. After passing this check, the system shall then compare the dialed number with all programmed allowed numbers of the particular level programmed for this extn. If the dialed number matches or exceeds any of the allowed number, then dialing is allowed.

6. If the dialed number does not match any of the allowed numbers then the system shall check for the denied group of numbers. If any of the programmed number matches the dialed number, then the dialing is denied.

7. If the dialed number does not match with any number in the accepted or denied group then dialing is allowed.

NOTE :

The system shall compare only the programmed digits with the dialed digits. Once the programmed number of digits tally with the dialed digits, then balance digits are dialed without any check.

Example :- If 022 is programmed in the allowed group, then all numbers exceeding 022 (i.e. 022123..... , 022422.....etc.) will be allowed.

Similarly, while checking in the denied list, if the programmed digits fully match with the starting digits of the dialed number, then access is denied.

29. HOTEL APPLICATIONS

When an EPABX is used in hotels, it is expected to perform certain additional functions that are specially related to hotel industry. These additional features are guest check-in/check-out, temporary check-in/check-out, guest grouping etc.

29.1 Guest/service group programming

This feature helps to classify guests in different groups and also to define service extn. for each group. Broadly there can be following three types of groups :

1) **Individual guest group** ('0' group) :

   This is the group of individual guests who only need to call service group extensions. These guests cannot dial any other room number.

2) **Guest group** ('1' to '8' group) :

   This is for a group of more than one guests and occupying more than one rooms. These guests can not only call service group extensions but can also call each other.

3) **Service group (9 Group) :**

   This group of extensions includes hotel staff and management. Any extension can call this group and this group can call any other extension.

For assigning of groups refer to programming manual.

29.2 Floor Service distinations

You can set a room service extn. seperately for each floor. Access code for room service for all floors shall be same (default 38), but the ring shall go to corresponding room service extn. depending on the caller's floor.

For example :

If room 210 on second floor calls for room service, ring should go to the room service extension on second floor. Similarly, if room 415 on fourth floor calls for room service, ring should go to room service extension on fourth floor. This helps the hotel management staff to address to guest calls in more efficient and quicker manner. This feature is also known as "floor service".

In this,
• Each extn. is assigned a floor group.
• Each group of floors is assigned a service extension and
• Room / floor service access code is defined.
For this refer prog. manual

29.3 Check-in and Check-out :

Whenever any new guest shall arrive, check-in function is performed to help normal tasks like

• Room status changed to occupied.

• Class of service (ISD/ISD/Local) opened as per 94 programming of that extn.

• New account opened for telephone calls.

For check-in,

☞ **Dial user password (by default 89 1111)**

Now,

☞ **Dial 3 ★ 1 - extn. number - 1**

Similarly, when any guest leaves, check-out function is performed to

• Change room status to “not-cleaned”

• Lock extn. for any outgoing junction calls

• ASMDR report with summary of that extn. printed.

For check out

☞ **Dial user password (by default 89 1111)**

Now,

☞ **Dial 3 ★ 1 - extn. number - 0**

29.4 Temporary check-in and check out :

When any guest goes out from hotel during day time, it is desirable to lock his extn. temporarily till he returns. This helps to avoid misuse of ISD/STD/local facility by hotel staff or other guests.

So, when the guest goes out temporary **check-out** function is performed as follows,

☞ **Dial user password (by default 89 1111)**

Now,

☞ **Dial 3 ★ 3 - extn. number - 0**

When the guest returns back in the evening temporary **check-in** function is performed again to restore class of service access on his extension. For this

☞ **Dial user password (by default 89 1111)**

Now,

☞ **Dial 3 ★ 3-extn. number-1**

30. DIRECT INWARD DIALING FACILITY (D.I.S.A)

With the CRYSTAL System, you can set any junction/ junctions for receving D.I.D. calls (Refer to programming section, for setting D.I.D. Jn.)

30.1 The D.I.S.A. Facility

Whenever there shall be an incoming ring on the D.I.D. junction, the junction shall latch automatically and shall give music tone to the caller for 5 seconds. After that the caller shall get D.I.D. beeps. If in this period the caller dials any extn. no. from his DTMF telephone, the call shall go directly to that extn.

DISA ring is given for 30 sec. If the call is not answered within this time, the ring stops and the call returns to first stage. The caller again gets voice message or music followed by DID beeps after which he can proceed again to try some other extn.

If dialed extn. is busy or any invalid number or no number is dialed during the beeps or voice period, the ring shall go to the round robin group of that jn. and the caller shall get ring back tone, till the call is answered by any extension.

31. REMOTE DIALING (D.O.S.A.)

Provided you have two or more P&T lines connected to your CRYSTAL system, you can utilize the S.T.D. facility of any P&T line to make an outward call even when you are away from the installed site of the system.

Anyone making a DOSA call should know his extension number and the dynamic lock password of his extension.

To activate remote dialing:

☞ **Dial junction number set for DOSA mode.**

✆ **You shall get music & then DOSA beeps.**

During the beeps, in tone mode

☞ **Dial 1 + Extn No. + Your extn. password**

✆ **You shall get short beeps if your password is correct.**

If the extension number / password is wrong, you shall get error tone for a short while followed by DOSA beeps again. You may now make a 2nd attempt.

☞ **Now take 2nd Jn. by 0/5 or 61/62 etc.**

☞ **Dial external number.**

To disconnect,

☞ **Dial #**

You shall get DOSA beeps & you can proceed again .

During DOSA, after every 30 secs you shall get reminder beeps and after 10 Secs. of the beep, the call will get disconnected. To extend your call, dial any digit from **0-9** after the beep.

To disconnect between 30 secs,

☞ **Dial #**

The 2nd jn. will be released and you shall get acceptance beep again. Now, you can make a new call by dialing 2nd Jn. no. + number. If you do not wish to make a new call

☞ **Dial #** again.

All DOSA calls are given in the print out and are marked with letter "D".

32. VIRTUAL EXTENSION

For PCO applications it is desirable to have additional extentions to be used directly by the clients.

In CRYSTAL system you can have 90 such virtual extensions starting from **3900 to 3989.**

Each extension can be alloted a 4 digit password. Now, whoever is alloted this extn. no. + password, can make a DOSA call in the normal DOSA call procedure. The call shall be stored in the ASMDR buffer. For extn. password setting, refer to programmers guide.

Example : Suppose password for virtual extension 3900 is set as 5432. Now, any client who is given this extn no. + password can make a DOSA call by **1 + 3900 + 5432.**

33. EXTERNAL CALL FORWARDING

With this facility, whenever there is an incoming call on a Jn. set for ECF mode, the system shall seize that junction plus a 2nd Jn. & dial out the programmed number from the 2nd Junction line. The caller shall first get a ring back tone for 2 sec. followed by music for 5 sec and then he shall be connected to the 2nd junction. Similar to DOSA call, any party can extend the call after 30 sec by dialing any digit from **0 to 9** or disconnect by dialing **#**.

You can also change the external number to be dialed out from the 2nd Jn. from a remote end, as follows

☞ **Dial Jn no. set for ECF mode.**

✆ **You shall get EPABX ring back tone for 3 sec.**

During this ring back tone,

☞ **Dial 1 + users password**

You shall get programming tone.

Now,

☞ **Dial 523 X YYY...#**

Where **X** is 1st Jn line number set for ECF mode

YYY... is the number to be dialed through second jn.

To disconnect,

☞ **Dial #**

34. VOICE FEATURES

You can attach a voice module in the hi-tech range of CRYSTAL systems. The module has a provision of 2 minutes of voice recording which can also be split into two sections of 1 min. each. The recorded voice can be set to be replayed in following modes.

1. DID / DOSA / FAX homing in day mode.
2. DID / DOSA / FAX homing in night mode.
3. Alarm call i.e. whenever you lift an alarm call, you shall get this recorded message.
4. Hold on music.
5. Auto redial.

1,2. DID / DOSA / FAX homing (Day / Night)

On an incoming call the caller shall first hear your recorded message which can be as follows-

"Welcome to *****. If you wish to send a fax transmission press start now. To call any extension, dial extension number or wait for operator to respond" etc.

If the caller does not dial any number, the voice message will be followed by beeps for 5 sec & then round - robin shall start.

For night mode you can feed a different message, which shall be replayed during an incoming call in the night mode.

3. Alarm call

Whenever a user lifts his handset during an alarm call, he shall hear the recorded voice.

4. Hold on music

You may feed any voice message or a music of 2 min. duration which shall be replayed whenever an external call is being transferred.

NOTE :

If you use the voice module for this feature, you cannot use it for any other feature i.e. for D.I.D. / Auto redial etc.

5. Auto redial

During auto redial, the dialed extn. gets ring on his extn. as soon as the called P&T number starts ringing. If the called party lifts his handset while your extension is still ringing, he shall get a music tone. If desired, you can programme for a voice replay instead of the music as follows : " This is *** please wait".

34.1 Feeding in of Voice Message

First of all decide if you want to use a single voice of 2 min or 2 voices of 1 min. each. Accordingly divide the voice module in 1 or 2 parts (Refer programmers guide).

Now, to record 1st message (from user programming mode)
Dial

☞ **721-1**

When you dial above, you shall get acceptance tone. Now start speaking. If you wish to record the full capacity, keep speaking till you get back the system tone (i.e. after 2 min. if your module is set for 1 part and after 1 min. if module is set for 2 parts).

NOTE:
If you intend to record a short message of say about 10~20 sec. only, go on hook after your recording is complete. Only the recorded duration of your voice will now be replayed.
To record second message,

Dial

☞ **721-2**

To have a replay of your recorded voice (from user programming mode)

Dial

☞ **722-1 for 1st voice &**

☞ **722-2 for 2nd voice**

Now, you can allocate the voice modules for any of the five functions from the programmers mode.

34.2 Sequence to be followed for setting VOICE feature

For setting of voice feature, following steps should be followed serially for correct operation.

A) Divide voice module in 1/2 parts.

B) Record the voice messages.

C) Have a replay to confirm the recording.

D) Set the voice for the desired feature.

NOTE :

1. When recording for music on hold, record for full two minutes (till you get back acceptance beep). Do not disconnect in between.

2. If you are setting voice module for music-on-hold, then disable internal music IC by inserting a dummy jack in the external music socket or by removing the music jumper cap.

3. In 204/206/308 range of fixed systems, you cannot set voice module for alarm calls/hold on music. You can use MMOH module for this.

35. FLEXIBLE NUMBERING

You can allocate any 1,2,3, or 4 digit number to any extension.

For example: You can programme

- ☞ **Extn. 21 as 4100**
- ☞ **Extn. 22 as 5022**
- ☞ **Extn. 23 as 48 etc.**

Refer to programmers guide for setting of above.

1) Digits 2 & 3, reserved specially for extn. numbers can be used freely.

2) Digits 1, 4, 5 ,6, 7 and 8 are used in feature codes and should therefore be avoided as first digits for office mode, though they can be used.

3) If you programme any extn. with 1st digit same as any feature code, then that feature code will now start with "*".

Example : If you programme any extn. as 41 then call pick-up shall become * 4.
Similarly, if any extn. is set as 629, then jn. numbers will start with *61, *62, ...
If first digit of any extn. is 1 or 8, then password will be by *89 XXXX.

4) Following extn. numbers are reserved by the system : 38, 39, 399, 3990 to 3999

These can not be assigned to any extn.

5) If you shall be using a mix of 2/3/4 digit nos., then number having starting common digits cannot be assigned to any other extn.

For example : If 2022 is used for one extn., then 202 cannot be used for any other extn. Similarly, if 2102 is used, then 210 or 21 or 2 cannot be used.

6) Same number cannot be assigned to two ports.

7) After setting flexible number, any extn. programming must be done using revised extn. numbers.

36. PAGING

A paging port is provided in the CRYSTAL system to which you can connect any amplifier input.
To announce through this port

☞ **Dial 3998**

✆ **You shall get ringback tone for 5 sec. and music shall be heard on the paging speakers.**

☞ **Now you can make your announcement**

When paging port is not being used, you may get a slight hum in the paging speakers. You can route the supply wires of the amplifier through the relay port to eliminate the humming.

To make an announcement

☞ **First switch on the relay (by 165).**

☞ **Make your announcement.**

Switch off the relay (by 166).

37. EXTERNAL MUSIC INTERFACE

You can connect a music system output to the external music interface socket provided on the EPABX system. When a external/internal caller is put on hold, he shall get the music being played on your external system.

NOTE:

The music signal should not exceed 0-3V peak to peak. A electrical signal of higher value from the external music source may damage the EPABX.

38. PROGRAMMABLE MUSIC ON HOLD MODULE

In fixed systems you can attach an optional MMOH module in which you can record voice / music of your choice, which shall be replayed whenever an external / internal caller is put on hold.

38.1 Connecting the module

1) Remove the 2 pin shorting cap (Near the music transistor).

2) Connect the 3-pin cable of the MMOH card to the 3-pin connector near the music transistor.

3) Connect the 2-pin connector of the MMOH to any speaker output of a tape recorder with the help of the provided EP cable.

4) Start play back of music from the tape recorder.

5) (a) Press SW1

(b) Now, Press SW2

(c) Release SW2 (keep SW1 pressed).

6) Release SW1 exactly after 2 Minutes.

7) Remove EP jack.

8) Press and then release SW2 once to reset the I.C.

9) Now try the music on hold.

NOTE :
If the music on hold is of very low volume then record again by increasing the volume level of the tape recorder. If music on hold is too loud & distorted then record again by reducing the volume.

9.9. REMOTE DISPLAY

One 9 pin serial port is provided in the CRYSTAL system to which you can connect a CRYSTAL remote display unit to get a detailed visual status of all extension\functions on your table. To enable this port refer to programmers guide.

9.9.1 Connecting the display phone \ remote display unit

1) Connect the 9-pin connector of the display interface unit to the ---
For 208 to 415 --- 9 pin connector on the cabinet marked "SERIAL".
For 1030\1080 --- 9 pin connector marked "DISPLAY"

2) Connect the mains cord of the display interface to 220V AC mains.

3) (a) For remote display (1040/8401/1080) :
Connect the 2-core wire from the remote display unit, to the black terminal on the display interface.

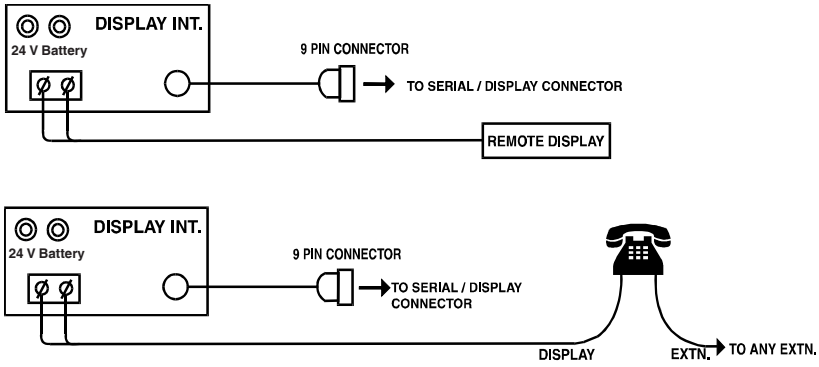
(b) For display phone (8181) :
Connect the socket marked "DISPLAY" to the black terminal on the display interface, and the other marked "EXTN" to any extension.

NOTE :
The two core wire going to the black terminal of the display interface can be extended upto 20 meters using any good two core cable.
This two core wire going to the display phone\display unit should be laid seperately and not taken from a common multi core wire being used for extensions.

4) Switch ON the EPABX\ display interface unit.

NOTE :
The two small terminals on the display interface unit are for battery connection. If UPS is connected to the EPABX, pull two wires from the battery and connect to these terminal. Hence during main failure also, the display unit shall keep functioning. (This power unit shall not charge the batteries)

Upto 3 display units or 10 display phones can be connected in parallel using a single display interface unit.



connectivity.

one for above function and the second one is for console phone. In expandable systems there are two serial ports, utilized for either computer connectivity or for display In fixed systems, there is one serial port which can be

shall be transferred to the computer.
Now, whenever you give any print out command, details

D) Switch on to any serial transfer files on your computer like X talk\Procom\Bitcom etc.

C) Enable the serial port for computer interface from the programmer mode.

2. Data bit - 8

4. Stop bit - 1

3. Start bit - 1

5. Parity bit - None

1. Baud rate - 9600

B) Set computer parameters as following :

computer

A) Connect serial port of EPABX to serial port of the

through the serial port as follows :

You can connect your EPABX system to a computer,

10. COMPUTER CONNECTIVITY

Pin connections of the 9 pin port is as follows

Pin No.	Specifications
1	+Ve
2	RXD
3	TXD
4	NC
5	GND
6	+Ve
7	NC
8	NC
9	NC

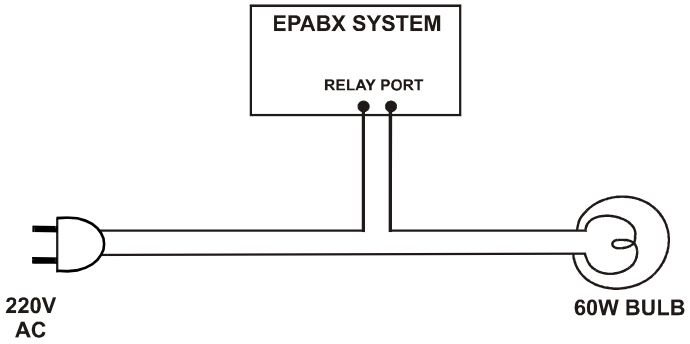
11. FAX HOMING

You can connect a fax machine to any of the extensions of the EPABX. When a fax mode, during a incoming call, the junction shall be seized automatically & the system shall wait for 6 seconds for fax tone. If fax tone is detected, the call will be transfered to the corresponding fax extension. If no tone is detected, the call will be transfered to the round-robin group for that junction.

If a voice module is installed,the caller shall first hear the voice announcement.It during this voice period, or within 6 sec. after the voice announcement, the EPABX senses fax peeps,the call will be transfered to the fax extn.

42. RELAY PORT

A relay port is provided in the CRYSTAL systems which can be programmed to switch ON/OFF any electrical appliances at predetermined timings. If the appliance consumes less than 0.5 Amp of current (or 100 W power), you can drive it directly, and if it consumes more, you can drive it through an external relay/contactor.



To switch **ON** relay,

Dial

☞ **165**

and to switch **OFF,**

Dial

☞ **166**

To set relay in auto mode, (from main prog. mode)

Dial

☞ **854 3**

For auto mode, up to 10 sets of timings can be programmed for the relay to switch ON/OFF automatically. For setting of timings, refer to programmers guide.

You can also control this relay from a remote end.

To **ON/OFF** relay -

Dial the junction set for DOSA mode.

✆ **You shall get DOSA beeps.**

☞ **Dial 1+extension password**

You will again get beeps if your password is correct.

Now,

Dial

☞ **165** for relay **ON** &

☞ **166** for relay **OFF**

To come out of DOSA mode.

☞ **Dial #**

43. THE CLI FACILITY

43.1. Intercom number CLI

You can connect a CLI phone to avail this facility. When there is an incoming ring on your extension, the number of the calling extension shall be displayed on the CLI display.

43.2 Amount display

Further whenever you replace your handset after an outgoing call (be it local or STD), you shall get the display of the call amount.

NOTE

1) To enable amount display, keep the printer for on line printing mode from main programming password (even if you are not using a printer)

2) During any printing operation, amount display shall be disabled temporarily. After printing operation is complete it is desirable to dial **720** (from users password). This shall clear the printing operation & resume amount display.

3) This feature is available only in fixed EPABX systems.

43.3 External number CLI

Provided you have the optional CLI attachment connected to your EPABX and your P&T line supports DTMF CLI facility (not FSK), you can get the number of the external caller on your CLI display phone. The number shall be displayed on the 1st extn. of the round-robin group. If the 1st extn does not answer the call and the ring passes on to the next extn, then the number shall again be displayed on the new extn.This pattern shall continue until the call is answered.

Further, when any incoming call is transferred to a 2nd extn, the incoming number shall again be displayed on that extension.

NOTE :

1) CLI number on transferred call is given only in fixed systems and not in expandable systems.

2) If a number of extensions are set to ring simultaneously for any incoming call then CLI number shall be displayed only on the first extension of that group (In expandable systems CLI number is not displayed on any extension if junction is set for simultaneous round-robin mode).

3) Normal CLI telephones available in the market are designed to work on 48V DOT lines. In worst case, some CLI telephones might not be compatible with CRYSTAL EPABX.

4) Normally DOT exchanges first send CLI number and then the ring signal. However, in some DOT exchanges first ring signal is sent and then after one ring, CLI number is transmitted. Such junction lines won't be compatible with CRYSTAL EPABX.

43.4 Storage of incoming call details

Numbers of the external caller shall be stored in the printer buffer also. Following details shall be stored in the buffer

1) Caller's number.

2) Jn. number of the incoming call.

3) Time / date of the incoming call.

4) Extension number which had finally spoken with the incoming caller.

Further, if any incoming call goes unanswered (say when office is closed) the same shall still be stored in printer buffer under **"missed call" extension 3999.** If desired you can take a print out of missed calls separately.

NOTE :

You have an option whether to store incoming calls in the buffer or not. Refer to programmers guide for details.

44. PRINTER SPOOLER

CRYSTAL system has a buffer memory for storage of calls. Once the number of stored calls crosses the warning level, the buffer LED on the front panel starts blinking. The buffer capacity varies in different EPABX models. When the buffer is full, it shall glow continuously. Once the buffer is full, the new call shall overwrite the 1st (oldest) call. Following table shows the max. buffer capacity of different models and their respective warning stages, at which buffer LED starts blinking.

System	Max. buffer Capacity	Warning/Indication
Fixed	1100 calls	1000 calls
Expandable	1250 calls	1150 calls

Following information is given in each printout :

A) Originating / terminating extension number.

B) Dialed number.

C) Junction number.

D) Time / date / duration of the call.

E) Pulse rate / total units.

F) Amount of the call.

G) Type of call.

A summary is also given at the end of each print out report. If desired one can set to have only the summary instead of a complete report (Refer to programmers guide)

Explanation of the symbols of the last column is as follows :

R = Reversal detection based call maturity

C = ACPD detection based call maturity

Blank = Delay based call maturity

D = DOSA call

E = ECF call

? = STD code does not exist in the code table

***** = Call duration more than 3 min.

****** = Call duration more than 6 min.

For various print out options, first enter users programming mode by dialing

☞ **89 1111**

Now for

PRINT OUT OF ALL CALLS,

Dial

☞ **711 0**

SMDR REPORT #: TYPE-WISE LISTING FOR ALL CALL SASON 30-01-02 (WED) AT 18:35

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	204-204	1	25232562	30-01-02	17:54	00:21	300.0	1	1.50	c
2	202-202	2	0852363256	30-01-02	17:54	00:32	2.0	17	25.50	
3	204-204	1	008956252536	30-01-02	17:55	06:52	2.0	208	312.00	?**
4	202-203	2	5698970	30-01-02	17:57	** INCOMMING CALL **				
5	203-203	1	085252852	30-01-02	18:00	03:26	2.0	104	156.00	*
6	204-204	2	5893618	30-01-02	18:02	** INCOMMING CALL **				
7.		2	0852	30-01-02	18:05	00.48	2.0	25	37.50	E
8.	3999-3999	1	7923766	30-01-02	18:05	** INCOMMING CALL **				
9.	202-202	2	089	30-01-02	18:06	00.12	2.0	7	10.50	D?
10.	3999-3999	1	7921267	30-01-02	18:07	** INCOMMING CALL **				
11.	3999-3999	1	0642328130	30-01-02	18:09	** INCOMMING CALL **				

Local	:-	Calls	:6	Time	:	00:00:21	Units :1	Amt:	1.50
STD	:-	Calls	:4	Time	:	00:04:58	Units :153	Amt:	229.50
ISD	:-	Calls	:1	Time	:	00:06:52	Units :208	Amt:	312.00
Total	:-	Calls	:11	Time	:	00:12:11	Units :362	Amt:	543.00

CRYSTAL 1030 Ver : 507

NOTE

You shall get the external caller's number only when the CLI unit is connected in the system.

PRINT OUT OF ALL LOCAL CALLS,

Dial

☞ **711 1**

SMDR REPORT # : TYPE-WISE LISTING FOR LOCAL CALLS AS ON 30-01-02 (WED) AT 18:36

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	204-204	1	25232562	30-0102	17:54	00:21	300.0	I	1.50	C
2	202-203	2	5698970	30-01-02	17 :57	**	INCOMMING CALL **			
3	204-204	2	5893618	30-01-02	18 :02	**	INCOMMIG CALL **			
4.	3999-3999	1	7923766	30-01-02	18:05	**	INCOMMING CALL **			
5.	3999-3999	1	7921267	30-01-02	18:07	**	INCOMMING CALL **			
6.	3999-3999	1	0642328130	30-01-02	18:09	**	INCOMMING CALL **			

Local : -	Calls : 6	Time :	00:00:21	Units : 1	Amt. :	1.50
STD :	Calls : 0	Time :	00:00:00	Units :	Amt. :	0.00
ISD :	Calls : 0	Time :	00:00:00	Units :	Amt. :	0.00
Total :	Calls : 6	Time :	00:00:21	Units : 1	Amt. :	1.50

CRYSTAL 1030 Ver : 507

PRINT OUT OF ALL STD CALLS,

Dial

☞ **711 2**

SMDR REPORT # : TYPE-WISE LISTING FOR STD CALLS AS ON 30-01-02 (WED) AT 18:38

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	202-202	2	0852363256	30-01-02	17:54	00:32	2.0	17	25.50	
2	203-203	1	085252852	30-01-02	18:00	03:26	2.0	104	156.00	*
3.		2	0852	30-01-02	18:05	00.48	2.0	25	37.50	E
4.	202-202	2	089	30-01-02	18:06	00.12	2.0	7	10.50	D?

Local:-	Calls :	O	Time :	00:00:00	Units :	Amt.:	0.00
STD:-	Calls :	4	Time	00:00:32	Units : 153	Amt:	229:50
STD:-	Calls :	O	Time	00:00:00	Units :	Amt:	0.00
Total:-	Calls :	4	Time	00:00:32	Units : 153	Amt :	229.50

CRYSTAL 1030 Ver : 507

PRINT OUT OF ALL ISD CALLS,

Dial

☞ **711 3**

SMDR REPORT # : TYPE-WISE LISTING FOR ISD CALLS AS ON 30-01-02 (WED) AT 18:40

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	204-204	1	008956252536	30-01-02	17:55	00:06:52	2.0	208	312.00	?

Local:-	Calls:0	Time	:	00:00:00	Units	Amt :	0.00
STD:-	Calls:0	Time	:	00:00:00	Units	Amt :	0.00
ISD:-	Calls:1	Time	:	00:06:52	Units 208	Amt:	312.00
Total:-	Calls:1	Time	:	00:06:52	Units 208	Amt:	312.00

CRYSTAL 1030 Ver : 507

PRINT OUT OF ALL CALLS MADE BY AN EXTENSION,

Dial

☞ **712 XX**

where **XX** is the extn. number

SMDR REPORT # : EXTENSION-WISE LISTING OF EXT# 202 AS ON 30-01-02 (WED) AT 18:42

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	202-202	2	0852363256	30-01-02	17:54	00:32	2.0	17	25.50	
2	202-202	2	5698970	30-01-02	17:57	**	INCOMMING CALL		**	

Local	:-	Calls	: 1	Time	:	00:00:00	Units :		Amt:	0.00
STD	:-	Calls	: 1	Time	:	00:00:32	Units 17		Amt:	25.50
ISD	:-	Calls	: 0	Time	:	00:00:00	Units :		Amt:	0.00
Total	:-	Calls	: 2	Time	:	00:00:32	Units :17		Amt:	25.50

CRYSTAL 1030 Ver : 507

PRINT OUT OF UNANSWERED INCOMING CALLS

Dial

☞ **712 3999**

SMDR REPORT # : EXTENSION-WISE LISTING OF EXT# 3999 AS ON 30-01-02 (WED) AT 18:47

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	3999-3999	1	06423281303	0-01-02	18:09	**INCOMING CALL **				

Local	:-	Calls:	0	Time	:	00:00:00	Units :	Amt:	0.00
STD	:-	Calls:	0	Time	:	00:00:00	Units :	Amt:	0.00
ISD	:-	Calls:	0	Time	:	00:00:00	Units :	Amt:	0.00
Total	:-	Calls:	0	Time	:	00:00:00	Units :	Amt:	0.00

CRYSTAL 1030 Ver : 507

PRINT OUT OF CALLS MADE THROUGH AN JUNCTION,

Dial

☞ **713 X**

where **X** is Jn. number

SMDR REPORT # : TRUNK-WISE LISTING FOR TRUNK#2 AS ON 30-01-02 (WED) AT 18:47

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	202-202	2	0852363256	30-01-02	17:54	00:32	2.0	17	25.50	
2	202-202	2	5698970	30-01-02	17:57	**	INCOMMING CALL	**		
3	202-202	2	5893618	30-01-02	18:02	**	INCOMMING CALL	**		
4.		2	0852	30-01-02	18:05	00.48	2.0	25	37.50	E
5.	3999-3999	1	7923766	30-01-02	18:05	**	INCOMMING CALL	**		
6.	202-202	2	089	30-01-02	18:06	00.12	2.0	7	10.50	D

Local	:-	Calls	:3	Time	:	00:00:00	Units : 0	Amt:	0.00
STD	:-	Calls	:3	Time	:	00:00:32	Units 49	Amt:	73.50
ISD	:-	Calls	:0	Time	:	00:00:00	Units :	Amt:	0.00
Total	:-	Calls	:6	Time	:	00:00:32	Units : 49	Amt:	73.50

CRYSTAL 1030 Ver : 507

PRINT OUT OF CALLS MADE ON A PARTICULAR DATE,

Dial

☞ **714 Date month year**

SMDR REPORT # : DATE-WISE LISTING FOR 30-01-02 AS ON 30-01-02 (WED) AT 18:48

SR	EXT1-EXT2	T	NUMBER	DATE	TIME	DUR	RATE	UNITS	AMOUNT	REM
1	204-204	1	25232562	30-01-02	17:54	00:21	300.0	1	1.50	c
2	202-202	2	0852363256	30-01-02	17:54	00:32	2.0	17	25.50	
3	204-204	1	008956252536	30-01-02	17:55	06:52	2.0	208	312.00	?**
4	202-203	2	5698970	30-01-02	17:57	**	INCOMMING CALL	**		
5	203-203	1	085252852	30-01-02	18:00	03:26	2.0	104	156.00	*
6	204-204	2	5893618	30-01-02	18:02	**	INCOMMING CALL	**		
7.		2	0852	30-01-02	18:05	00.48	2.0	25	37.50	E
8.	3999-3999	1	7923766	30-01-02	18:05	**	INCOMMING CALL	**		
9.	202-202	2	089	30-01-02	18:06	00.12	2.0	7	10.50	D?
10.	3999-3999	1	7921267	30-01-02	18:07	**	INCOMMING CALL	**		
11.	3999-3999	1	0642328130	30-01-02	18:09	**	INCOMMING CALL	**		

Local	:-	Calls	:6	Time	:	00:00:21	Units :1	Amt:	1.50
STD	:-	Calls	:4	Time	:	00:04:58	Units :153	Amt:	229.50
ISD	:-	Calls	:1	Time	:	00:06:52	Units :208	Amt:	312.00
Total	:-	Calls	:11	Time	:	00:12:11	Units :362	Amt:	543.00

CRYSTAL 1030 Ver : 507

PRINT OUT OF SYSTEM PARAMETERS

Dial

☞ **715 1**

PRINT OUT OF EXTN. PARAMETERS # 1

Dial

☞ **715 21**

PRINTOUT OF EXTN. PARAMETERS # 2

(for expandable models only)

Dial

☞ **715 22**

EXTENSION PARAMETERS2 AS ON 04-02-02 (MON) AT 18:47

EXT NO.	FLEX#	EXTENSION NAME	GUEST GROUP	FLOOR	NUMBER
01	201	ABCD	SERVICE		9
02	202	ABHI	GUEST		1
03	203	ATUL	PARTY4		6
04	204	PANKAJ	GUEST		2

CRYSTAL 1030 Ver: 505

PRINT OUT OF TRUNK PARAMETERS

Dial

☞ **715 3**

PRINT OUT OF CALL AMOUNT SUMMARY OF ALL EXTNS. (for expandable models only)

Dial

☞ **715 4**

SMDR REPORT # 10: TOTAL CALL AMOUNT OF ALL EXTS. AS ON 05-02-02 (Tue) AT 09:43:05

Room No.	Amount	Room No.	Amount
201	1.50	249	37.50
202	10.50	250	16.50
203	25.50	251	10.50
204	156.00	252	1.50

CRYSTAL 1030 Ver: 505

PRINT OUT OF ALLOWED NUMBERS

Dial

☞ **715 5**

ALLOWED LIST

Level	Location	Number	Level	Location	Number
0	0	022	0	1	077
0	2	003	0	3	588
0	4	044	0	5	099
0	6	555	0	7	621
0	8	021	0	9	611

CRYSTAL 1030 Ver: 505

PRINT OUT OF DENIED NUMBERS

Dial

☞ **715 6**

DENIED LIST

Level	Location	Number	Level	Location	Number
0	0	22	0	1	95
0	2	420	0	3	41
0	4	44	0	5	004
0	6	565	0	7	72
0	8	789	0	9	58

CRYSTAL 1030 Ver: 505

PRINT OUT OF VIRTUAL EXTN. PASSWORDS,
(for expandable models only)

Dial

☞ **715 8**

VIRTUAL EXTENSION-PASSWORD AS ON 05-02-02 (Tue) AT 09:41

Virtual Extension	Password	Virtual Extension	Password
3900	1111	3901	6666
3902	2222	3903	7777
3904	3333	3905	8888
3906	4444	3907	1234
3908	5555	3907	4321

CRYSTAL 1030 Ver: 505

PRINT OUT OF GLOBAL DIRECTORY REPORT
(for expandable models only)

Dial

☞ **716**

GLOBAL DIRECTORY AS ON 05-02-02 (Tue) AT 09:41

Location	TRK	Number	Location	TRK	Number
10	1	5698970	55	5	8989889
11	2	7040162	56	6	0056565
12	3	4565656	57	7	2588585
13	3	0112121	58	8	8745454
14	5	0698745	59	7	0021454

CRYSTAL 1030 Ver: 505

TO START PRINTING

Dial

☞ **718**

TO STOP PRINTING

Dial

☞ **719**

TO CLEAR PRINTING OPERATION

Dial

☞ **720**

NOTE :

1) Before starting for storage of P&T calls for the 1st time, first clear printer buffer and STD code table. Refer to programmers guide for details.

2) **Due to various parameters taken into consideration by the P&T department (such as number of calls etc), or due to missed calls in only CPD logic (for reasons stated earlier) the P&T billing may not match with EPABX 's buffer print out. Crystal assumes no responsibility for such differences.**

APPENDIX – A **SYSTEM FEATURES**

S. NO.	FUNCTION	COMMAND
1.	User mode	89+user password
2.	Alarms	
	Duration alarm	781+MM
	One time alarm	782+HH MM
	Repeat alarm	783+HH MM
	Remote alarm	784+extension+alarm code+ HH MM
	Cancel all alarms	780
3.	Auto call back-on busy extn/Jn.	75
4.	Auto call back-on no reply	H/F+75
5.	Redial on junction	71 or #
6.	Auto redial-low priority	711
7.	Auto redial-high priority	7111
8.	Interrupt request	84
9.	Barge-in	83
10.	Monitor	80
11.	Call follow me	722+extn. no.+ extn. password
	Call forward-if no reply	723+extn.
	Call forward-all calls	721+extn. no.
	Call forward-If busy	724+extn. no.
	Cancel call forward (all types)	720
12.	Call hold	Flash
13.	Call park	H/F+ 5
	Retrieve parked call	15
14.	Call pick up-group	4
15.	Call pick up-selective	76 + extension

APPENDIX – A **CONTD.**

S. NO.	FUNCTION	COMMAND
16.	Call toggle	Flash - 1
17.	Conference	Flash - 0
18.	Dynamic lock	
	Open lock	82+password
	Set auto-shut time	81+password + lock code+ MM
	Change password	86 + old password + new password
19.	Flashing on the trunk	Flash + # + 1/2
20.	Extension hot line	161 + extension + delay time
	Junction hot line	162 + trunk + delay time
	Hot outward dialing	163+Jn. no.+ delay time+ external no. + #
	Cancel hot line	160
21.	Program personal memory	18+location+jn.+external no. + # / flash
22.	Trunk calls on group 0 trunks	0
23.	Trunk calls on group 5 trunks	5
24.	Trunk reservation	112+Jn. no.
	Cancel trunk reservation	112+0
25.	Walk - in class of service	111+Your extn. no.+Your extn. password
26.	Switch OFF system relay	166
27.	Switch ON system relay	165

APPENDIX – B **USER PROGRAMMABLE FEATURES**

S. NO.	FEATURE	COMMAND
1.	Enter user password	89+user password
2.	Start recording voice message	721-1/2
3.	Playback recorded message	722-1/2
4.	Set day mode	851
5.	Set night mode	852
6.	Auto day/night change mode	853
7.	Demonstrate dial tone	761-1
8.	Demonstrate ring-back tone	761-2
9.	Demonstrate busy tone	761-3
10.	Demonstrate error tone	761-4
11.	Demonstrate confirmation tone	761-5
12.	Demonstrate programming tone	761-6
13.	Demonstrate internal call wait tone	761-7
14.	Demonstrate external call wait tone	761-8
15.	Demonstrate warning tone	761-9
16.	Demonstrate musical tone	761-0
17.	Check-in/check-out	3★1-extension-1/0
18.	Temporary check-in/check-out	3★3-extension-1/0

APPENDIX – C **PRINT COMMANDS**

S. NO.	FUNCTION	COMMAND
1.	Enter user password	89 +user password
2.	ASMDR report of ALL calls	711-0
3.	ASMDR report of LOCAL calls	711-1
4.	ASMDR report of STD calls	711-2
5.	ASMDR report of ISD calls	711-3
6.	ASMDR report of calls made by an . extension	712 + extension
7.	ASMDR report of all calls made on given junction	713 + junction
8.	ASMDR report of all calls made on given date	714 -DD-MM-YY
9.	Print system parameters	715-1
10.	Print extension parameters#1	715-2-1
11.	Print extension parameters#2	715-2-2
12.	Print trunk parameters.	715-3
13	Print ASMDR summary for all extns (Expandable models only)	715-4
14.	Printout of allowed numbers	715-5
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16.	Print virtual extension passwords (Expandable models only)	715-8
17.	Print global directory report (Expandable models only)	716
18.	Print pulse rate table	717-1
19.	Print STD code table	717-2
20.	Start printing	718
21.	Stop printing	719
22.	Clear printing	720

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